



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/084,796	02/27/2002	Ram Oron	55219-00002USPT	7874
30223 7590 05/17/2004				
JENKENS & GILCHRIST, P.C.				
225 WEST WASHINGTON				
SUITE 2600				
CHICAGO, IL 60606				
EXAMINER				
LEE, JOHN D				
ART UNIT		PAPER NUMBER		
2874				

DATE MAILED: 05/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/084,796

Applicant(s)

ORON ET AL.

Examiner

John D. Lee

Art Unit

2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

(election)

- 1) ☒ Responsive to communication(s) filed on 02 April 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-62 is/are pending in the application.
- 4a) Of the above claim(s) 20-28, 36-41 and 52-55 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-19, 29-35, 42, 44-51, 56 and 59-62 is/are allowed.
- 6) ☒ Claim(s) 43 and 57 is/are rejected.
- 7) ☒ Claim(s) 58 is/are objected to.
- 8) ☒ Claim(s) 1-62 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The <sup>title</sup>specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 0202,0402
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

Art Unit: 2874

Applicant's election without traverse of Invention I (claims 1-19, 29-35, 42-51, and 56-62) in the paper submitted on April 2, 2002, is acknowledged. Claims 20-28, 36-41, and 52-55 are withdrawn from further consideration by the Examiner as being drawn to a non-elected invention (37 C.F.R. § 1.142(b)).

Receipt is acknowledged of papers submitted under 35 U.S.C. §§ 119(a)-(d), which papers have been placed of record in the file.

The drawings filed with this application on February 27, 2002, are acceptable.

The title is objected to as not being sufficiently descriptive of the claimed invention. Appropriate correction is required.

The specification has not been studied to the extent necessary to determine all possible minor errors therein. Applicant's cooperation is requested in correcting any errors of which applicant may become aware.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 43 and 57 are rejected under 35 U.S.C. § 102(b) as being clearly anticipated by U.S. Patent 5,099,147 to Gregor et al. Gregor et al discloses an optical system (and method) for converting an input beam of light into a plurality of output beams having different wavelengths which essentially involves a cascaded array of Raman cells (see, for example, Figure 2). The array of Raman cells (wavelength shifting devices) are in optical communication with each other, with the first cell 12

receiving the input beam of light and generating Stokes-shifted wavelengths which are then input to the second cell **24**. These Stokes-shifted wavelengths constitute a seeding of the cell **24** (column 3, lines 21-22).

The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 43 and 57 are further rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 5,436,757 to Okazaki et al. Okazaki et al discloses an optical system (and method) for converting an input beam of light into a plurality of output beams having different wavelengths which essentially involves a cascaded array of periodic domain-inverted structures (see, for example, Figure 3). These structures, which shift the light wavelength in a predetermined manner, are clearly in optical communication with each other, as they are successively positioned in an optical waveguide. The first structure **23** receives an input beam of light (**13** or **14**) and outputs a wavelength-shifted beam (**26**, **27**, or **28**). Although not stated in the reference, it is believed obvious that one of the input beams (**13** or **14**) could act as a seeding beam, causing wavelength shifts by the apparatus that otherwise could not be achieved. The person of ordinary skill in the art, then, would have found the incorporation of a "seeding beam" to have been obvious in Okazaki et al.

Claims 1-19, 29-35, 42, 44-51, 56, and 59-62 are allowable over the prior art of record. The prior art does not disclose or suggest an optical system (and method) for

converting an input beam of light into a plurality of spatially or angularly shifted output beams having different wavelengths comprising an array of a plurality of acousto-optical and/or stimulated Brillouin scattering (SBS) wavelength-shifting devices, wherein variations in the wavelength of the input beam, or in temperature or strain of the devices, will cause the wavelengths of the output beams to uniformly vary, thus maintaining constant intra-wavelength spacings between the output beams. The prior art also does not disclose or suggest an optical system (and method) for converting an input beam of light into a plurality of output beams having different wavelengths comprising an array of a plurality of wavelength-shifting devices, wherein at least the first such wavelength-shifting device includes first and second wavelength-shifting components connected in series and having refractive indices that vary in opposite directions in response to temperature changes. The prior art further does not disclose or suggest an optical system (and method) for converting an input beam of light into a plurality of output beams having different wavelengths comprising an array of a cascaded plurality of wavelength-shifting devices, wherein a feedback line is provided for supplying the output beam of the last wavelength-shifting device to the input of the first wavelength-shifting device concurrently with the supplying of an input beam to the input of the first wavelength-shifting device.

Claim 58 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. There is no indication that either Gregor et al or Okazaki et al (the closest prior art documents known) invokes a design which ensures

that variations in the wavelength of the input beam, or in temperature or strain of the devices, will cause the wavelengths of the output beams to uniformly vary, thus maintaining constant intra-wavelength spacings among the output beams.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent 6,181,848 to Bruno et al shows an optical waveguide device with two waveguide components connected in series and having refractive indices that vary in opposite directions in response to temperature changes.

All of the prior art documents submitted by applicant in the Information Disclosure Statements filed on February 27, 2002, and April 10, 2002, have been considered and made of record. Note the attached initialed copy of forms PTO-1449.

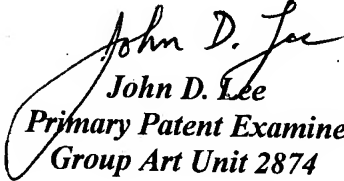
This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. § 103(a), the Examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR § 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the Examiner to consider the applicability of 35 U.S.C. § 103(c) and potential 35 U.S.C. §§ 102(e), (f) or (g) prior art under 35 U.S.C. § 103(a).

Any inquiry concerning the merits of this communication should be directed to Examiner John D. Lee at telephone number (571) 272-2351. The Examiner's normal work schedule is Tuesday through Friday, 6:30 AM to 5:00 PM. Any inquiry of a general or clerical nature (i.e. a request for a missing form or paper, etc.) should be directed to

Application/Control Number: 10/084,796  
Art Unit: 2874

Page 6

the Technology Center 2800 receptionist at telephone number (571) 272-1562, to the technical support staff supervisor (Team 8) at telephone number (571) 272-1564, or to the Technology Center 2800 Customer Service Office at telephone number (571) 272-1626.

  
**John D. Lee**  
**Primary Patent Examiner**  
**Group Art Unit 2874**